

Kunal Kapila

Bachelor of Science, Mathematics and Scientific Computing
Double Major, Computer Science and Engineering

kunalkap@iitk.ac.in
home.iitk.ac.in/~kunalkap/
+91-9005685064

Education

- **Indian Institute of Technology, Kanpur** 2014 - 2019 (Expected)
Cumulative Grade Point Average 9/10
- **All India Senior School Certificate Examination (AISSCE)**
Central Board of Secondary Education (CBSE), Govt. of India; Delhi Public School, R. K. Puram
 - 98.2% (School Topper) with National top 1% in Computer Science & Chemistry 2014
 - Cumulative Grade Point Average (CGPA) 10/10 2012

Academic and Co-Curricular Achievements

- Secured AIR 116 in **JEE Mains** 2014 & AIR 1306 in **JEE Advanced** 2014 amongst 1.5 million candidates
- Secured Rank 29 & 54 in **ACM-ICPC Amritapuri** Onsite & Online Round 2015 respectively amongst 1500 teams
- **Microsoft Code.Fun.Do**
 - **Winner 2014-15**: Graphing app to plot implicit 2D Mathematical Functions for Windows Phone Platform
 - **National 5th, Coding Milestone, Finalist Forum 2014-15**: Educational app for Windows Phone Platform
 - **Winner 2015-16**: Front-end for open source program simulation code for Microsoft Windows Store
- Qualified for & attended **International Olympiad of Informatics Training Camp** 2014
- **Kishore Vaigyanik Protsahan Yojna** Fellow 2013, Department of Science & Technology, Government of India
- **National Talent Search Examination** Scholar 2010, conducted by NCERT, Government of India

Work Experience

- Development Intern, **IITK NYC Office** MAY 2016 - current
Supervisor: Prof. Manindra Agrawal, Department of CSE, IIT Kanpur
 - Working on the backend of a scale-able web application using Scala with Akka
 - Refactored the core code base including the database schema to incorporate typesafe identifiers
 - Currently working on an efficient way of implementing history for editable items in a stream of objects
- Web Developer (Intern), **Elanic**, Bangalore DEC 2015
 - Full stack developer: MongoDB, AngularJS and NodeJS along with Restify framework
 - Built RESTful APIs for notification, engagement(likes, comments) and search (using Elastic Search) modules

Projects

- **PhotoProof**: Cryptographic Image Authentication JUN 2016 - current
Supervisor: Prof. Nasir Memon, (Department Head) Department of CSE, NYU School of Engineering
 - Understood the theoretical model for image authentication based on Proof-Carrying Data (PCD)
 - Currently working on a practical implementation of the idea described in the paper using libsnark's PCD
- **Cimulator**: a Visual & Interactive Tutoring system MAY - JUL 2015
Supervisor: Prof. Amey Karkare, Department of CSE, IIT Kanpur Tested by 400 students in Fall 2015
 - Interpreter for C language in python, modelled memory artificially, handled external header files & overflows
 - Prompts user with possible corrections for runtime errors instead of crashing abruptly (unlike gcc)
 - Web interface to **simulate C codes** that were interpreted by Cimulador to provide visual cues to the user

Relevant Courses Undertaken

- **Mathematics**:
Mathematics I (Functional Analysis), Mathematics II (Linear Algebra), Probability & Statistics, Mathematical Logic, Abstract Algebra, Commutative Algebra (*), Introduction to Fourier Series (*), Real Analysis, Complex Analysis, Several Variable Calculus(*)
- **Computer Science**:
Fundamentals of Computing (A*), Data Structures and Algorithms (A*), Algorithms II (*), Theory of Computation(*), Modern Cryptology, Principles of Database Systems, Quantum Computing, Introduction to Computer Graphics
- **Others**:
Introduction to Economics (A*), Introduction to Philosophical Logic
(A*) Awarded for exceptional performance (*) Courses in Progress

Positions of Responsibility

- **Coordinator, Programming Club**, Science and Technology Council, IIT Kanpur MAR 2016 - current
 - Conducted several lecture series, workshops and competitions on Algorithmic Programming, Open Source Development, and Web Development for students of the campus community
 - Organised the summer camp and mentored over 60 students who completed projects in the field of Web & App Development, Augmented Reality, Machine Learning, Computer Vision and Ethical Hacking
- **Head Web, Antaragni**, Students' Gymkhana, IIT Kanpur MAR 2016 - current
 - Conceptualised and designed the website for Antaragni 2016 (<http://antaragni.in/>)
 - Implemented NodeJS server with Express framework, along with MongoDB & AngularJS
 - Dynamically rendered the events, contacts, sponsors page and schedule from the database